generating the luminescence by non-evanescent excitation in a volume of the analyte sample as luminescence radiation;

guiding the luminescence radiation generated in an immediate proximity of a surface of the waveguiding layer to a measuring device after the luminescence radiation penetrates the waveguiding layer; and

measuring the luminescence radiation with the measuring device.

A1 (continued)

2. (Amended) The method as claimed in claim 1, wherein said generating of the luminescence radiation comprises generating the luminescence radiation one of electrically, chemically, and by optical excitation of radiation.

3. (Amended) The method as claimed in claim 1, wherein the optical layer waveguide is a planar waveguide with outcoupling elements for the luminescence radiation.

4. (Amended) A method for exciting and determining a luminescence in an analyte sample which is located in contact with at least two waveguides with diffractive outcoupling elements of a sensor platform which has a one-dimensional arrangement or a two-dimensional arrangement of the at least two waveguides, said method comprising;

generating the luminescence by non-evanescent excitation in a volume of the analyte sample as luminescence radiation;

guiding the luminescence radiation generated in an immediate proximity of a surface of waveguiding layers of the at least two waveguides to a measuring device after the luminescence radiation penetrates the waveguiding layer; and

measuring the luminescence radiation with the measuring device.

5. (Amended) The method as claimed in claim 4, wherein the sensor platform is covered with a second layer which contains cutouts for holding the analyte sample in a region of the guided luminescence radiation.

6. (Amended) The method as claimed in claim 3, wherein the optical layer waveguide contains one or more diffractive elements as the outcoupling elements for coupling out the luminescence radiation, and the analyte sample is arranged one of upstream of and between at least two of the outcoupling elements.

C1 (continued)

7. (Amended) The method as claimed in claim 2, wherein
said generating of the luminescence radiation comprises generating the luminescence radiation by the optical excitation of radiation, the excitation radiation of the optical excitation of radiation being directed onto the analyte sample from a side of the waveguiding layer opposite to a side of the waveguiding layer where said guiding of the luminescence radiation occurs by a planar waveguide.

8. (Amended) A device for measuring luminescence generated in an analyte sample by excitation radiation, said device comprising:

at least one optical layer waveguide comprising a transparent substrate and a waveguiding layer, said waveguiding layer adapted to have an analyte sample located in contact therewith;

one of an electric energy source operable to generate an electric field, said electric energy source having electrodes, and an optical energy source operable to emit excitation radiation, wherein said electrodes of said electric energy source are located in direct contact with the analyte sample, and the excitation radiation of said optical energy source is directed directly onto the analyte sample at an inclined angle or a right angle, or a reservoir containing a chemical which excites a chemiluminescence in contact with the analyte sample; and

an optoelectronic detection unit operable to measure luminescence radiation generated by the action of the electric field or the excitation radiation.

9. (Amended) The device as claimed in claim 8, wherein said at least one optical layer waveguide is a plurality of optical layer waveguides, said plurality of optical layer waveguides

being planar waveguides which have at least one outcoupling element for coupling out the luminescence radiation.

A1 (concluded)

10. (Amended) A sensor platform comprising:

a planar optical layer waveguide comprising:

a transparent substrate,

a waveguiding layer,

at least one outcoupling element operable to couple out excitation radiation, and

a tight sealing layer located on said waveguiding layer, said tight sealing layer having, at least in a subregion of the excitation radiation, a cutout having an open top or a closed top and connected to an inflow channel and outflow channel, for an analytical sample, said cutout having a depth at least corresponding to a depth of penetration of an evanescent field of luminescence light guided in said planar optical layer waveguide, wherein

said tight sealing layer comprises a material which, at least on a bearing surface at least in the depth of penetration of the evanescent field of the luminescence light guided in said planar optical layer waveguide, is transparent to the luminescence light, and

said at least one outcoupling element is completely covered by said material of said tight sealing layer at least in an outcoupling region of the luminescence radiation.